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1  ccaaaaaatt gttctcttgg gggttggggc gacaagcggg aaggaggaggc
51  attttgggca aattggctta ttgccacgca agggctttta caccttaggt
101 tgggtgggttc acaggttgca ggcaaccac catggcacac gtattacctat
151 gtaaccaacc tgcacatca tgtataccta tgtaaccaac ctggttagatt
201 ctgcacacgt atcccaggac tttagagtga aaaaaaaagt ggtgtgtaga
251 aaaatcacct gcaatctcag catagttaac gcttagtaca tttcagagag
301 agagggtgac aggaaaggga ggatgagagt gggtttaaga cacaagggtca
351 tattataaaa tcagggtctt tggaagttta gtcccaaaac cacacatctc
401 ataatcccct gcagtgtctg attaaaatgc aacatcacta aggccacaga
451 ctcagactct ggagaaagat ccagaaaact gcccgtttta taaacatttg
501 ggcgattctt acggcctcta aagaccaaga accactgctg cctagagctc
551 tgctctcttc attgaacaat acaagaggag tgtgtaggtg gacaccacc
601 acttccaaca gcttaggaga gcccttgagt atggattgat gtattaaaat
651 ttattgaatc acatgtctgag attttcacca gctgcccgtg gggatctggg
701 catttattcc catattgcac tggctggctg gaagccagca gcataaactc
751 cagggtgtt ctgtcaacc ccaccagact caccctctc caccagcccc
801 ggcaggcttc tccttccatc tctctgaagc aacttactga tgggccctgc
851 cagccaatca cagccagaat aacgtatgat gtcaccagca gccaatcaga
901 gctcctcgtc agcatatgca gaattctgtc attttactag ggtgatgaaa
951 ttcccaagca acaccatcct tttcagataa gggcactgag gctgagagag
1001 gagctgaaac ctaccgggg tcaccacaca cagggtggoa ggctgggacc
1051 agaaaccagg actgttgact gcagcccggg attcattctt tccatagccc
1101 acagggtgtt caaagacccc agggcctagt cagaggctcc tccttccctg
1151 agagttcctg gcacagaagt tgaagctcag cacagcccc taacccccaa
1201 ctctctctgc aaggcctcag gggtcagaac actggtggag cagatcattt
1251 agcctctgga ttttagggcc atggtagagg ggggtgtgcc ctaaattcca
1301 gccctggtct cagcccaaca ccctccaaga agaaattaga ggggccatgg
1351 ccaggtgtg ctagccgttg cttatgagca gattacaaga agggactaag
1401 acaaggactc cttgtggag gtcctggctt agggagtcaa gtagcgccg
1451 ctcagactc acgtgggcag tgccagcctc taagagtggg caggccgact
1501 ggccacagag tccCAGGGAG TCCACCAGC CTAGTCGCCA GACCTTCTGT
1551 GGGATCATCG GACCCACCTg gaaccacc tgtgagtaca aggtgcccc
1601 ggtggactgg gatggggctt tgaggccttc agggttggat ggccatcttg
1651 cgtattttgtg tgggatatgc acacacaggc agcacatgcg cagggtgtgtg
1701 ggcacctgtg tgtctgtgca aatgccctga ggtgggaatg agcttgggtg
1751 gcatcaggag cgacagccag ccagtgtggc tgcagcaaaa cacacaggga
1801 aagaatggag ggggcatcaa tctactgaaa aattatttat agagctcccc
1851 ctaaaaaaaa gaaggtctct tctttcgata gaagaaggga gagaggggt
1901 ttgtccttat aaatataagg gaggagccgc ccctcaaaaa ataaggagg
1951 gaggacceaa gaccccggtg gttgtgtgtt ttccaggggg agctcgaacc
2001 ctttagaggg agcgtgggag aaccgctgta ttcaggcctc tcgagagaaa
2051 aggagcggcc gcccaaaaaa tatccctccc gggcgataag aaatggtggc
2101 ctctctcaaa aagatgaaga ggaagccgga gttgtatgtg ttgatatttt
2151 taaaactcca ggtagnnnnn nnnntgctt cagtaaattt ttattgagcg
2201 ccttctacga gaacacaaga ggagcttcca ttctgaggag gaaacaggca
2251 ggaaacaggc agatatcctg tataatttca agtagtgata agtgctctct
2301 agaaatatca agcaagggtg ggagacacag agcaccgggt gcagtggggc
2351 tctattttcca ggttggatgg ttgggaacat cttttctaaa gggaaacctg
2401 agtgggaagg aaccatgcag gtatctcagg aagagcttcc tccaggcagg
2451 aagatcagca ggtggaaagg ccctggagcc accattcagt aaacatcatt
2501 tgagcatctc taccagctag gttccattat gggaatggga atatggtggt
2551 ggacagggct gcctggtccc ttccatactt ctcacactag ggtggttgag
2601 agagcttggg agctaacgaa caagatgggc tgagaacact gcctagccca
2651 gaggacctga gcttagtgtg tagacattgc tgctgttact gcctttgtcg
2701 ttgtattatt tatttattta tttattgatc ttaagacaga gttttgctct

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FIG.1A

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2751 tcttaccag gcttgagtg aatggcgtga tctcagctca ctgcaacctc
2801 cacctcctgg gatcaagcga ttctcctgcc tcagcctcct gagtagctgg
2851 gattacaggc acccgcacca cgcctggata atttttttgt attttttagta
2901 gagacagggg ttcacatgt tggacaggct ggtctcgaac tcctgacctt
2951 aggtgatcca cctgcctcga cttcccaaag tgatgggatt ataggcatga
3001 gccactgctc ccagtgatga tagaaagtta aaggcacatg gcaatgcaca
3051 cgcctatcta cgtcttccct gccaaagcaa agggcagcct ctgggctcac
3101 tttcttgctg ttctacttcc aaaaggcagt cagaactggc agggccttgg
3151 agaccacttc atccacctcc tagggctcct atgggagagt tgagggtccag
3201 agcaggggag ggtcctgaca ggctctgacc agggcctctg atccctacaa
3251 acccccaatc ggtgtccctc tctaccagGA CCAAGCCCA CCTGCTGCAG
3301 CCACTGCCT GGCCATGACC ATCACTTACA CAAGCCAAGT GGCTAATGCC
3351 CGCTTAGGCT CCTTCTCCCG CCTGCTGCTG TGCTGGCGGG GCAGCATCTA
3401 CAAGCTGCTA TATGGCGAGT TCCTAATCTT CCTGCTCTGC TACTACATCA
3451 TCCGCTTTAT TTATAGgtaa agctggcagg gctgggcccg ggggcctggg
3501 aaggatgtgg ctggggctgg gagctgggag ctccctggggg cctcccagcc
3551 agctcagggc ccagtgcacc agtccactac aacactaagc tgggctcctg
3601 accagctcct gggcactgga gctgaggctg cgcgctgggg gctgggcaga
3651 gtaaagaagt cacactgaga ggaatgctca gccaggccag cagggtttta
3701 gccacccttc ctccaacccc aggaggaccc ctggagccca ggctttgtct
3751 ggccccactc tactggcctg ttttactgaa tcccacacag actcataggc
3801 ccacatagta cattaataaa gagagagaga gagagagaga gagagagatg
3851 gagtctcact gtgttgctca ggctggcttc gaactcctag gctcaagcaa
3901 tccccctgcc ttagcctccc aaggggctgg gattacaggt gtgagctact
3951 gcacttgacc aaccacatgg tacttttttt tttttttttt ttttttgaga
4001 cagggtttca ctccatcacc caggctggag tgcagtgggg gcaatcttgg
4051 ctactgttaa cctctgcctc ccagggtgcaa gcgattctcc tgccttagcc
4101 tcctgagtag ctggaattat aggcacacac caccacgcct ggctaatttt
4151 ttttttttct tgtattttta gtagagacag ggtttcatca tgttgagacg
4201 gctgggtctt aaccctgac ctcaagtgat ccaccacctt cggcctccca
4251 aagtgtctgg attacaggtg tcagccacca tgcacagccc acatggtaca
4301 ttttttaaaa ttatttttta attaaantgt ttatctaagg ccagtagcag
4351 tgactcgcgt ctgtaatccc agcactttga ggggccaagg tgcggggatc
4401 acttgagcct gggagttcag cgtgggcaac atagttagac cccgtctcta
4451 ccaaaaattt aaaaaattag ctgggagtgg tggcatttgc ctgtggtccc
4501 agctacttgg gaagctgagg tgtggggatg gctgaagcct gtgaggtcga
4551 ggctgcagtg agctatgatc acaccactgc acttcagcct gagtgcagg
4601 ctatctcaaa agcaaaacaa ataattgtta tctaaacggt aaggtataat
4651 cacagaatat atgatagcat tttaaattga aaaagcatta atgattacat
4701 ggattgtaaa atatcaataa catgaaattc ttgtgttctt aataatgcta
4751 gcaacaaggc acatttggtt tttactaggg caccaaggta ctttaaaaaa
4801 agttaggggc agccacaggg gctcacacct gtaatcccag cactttggga
4851 ggccaaggca ggaggatcac ttgagcccag gaggtttaga cctgagcaac
4901 ataggagat cctgatcttg tctctataaa aaattaaaaa attggctagg
4951 ccttttggtt tacaccgta atcccagcac tttgggaggc cgaggcgggt
5001 ggatcatgag gtcaggagt tcaagaccagc ctggccaaca tagtgaaccc
5051 aatctctact ataaatacaa aaattagccg agtggggtgg cacgcacctg
5101 tagttccagc tactcaggag gatgaggccg gagaatcgct tgagcccggg
5151 aggcagaggc tgcagtgagc cgagaccatg ccattgcact ccagcctagg
5201 tgacagagtg agactccgtc ttaaaataat attaaaatct taaaatgatc
5251 tgggcatggt ggcttatgcc tgtagtccca cccagctctt caggaggctg
5301 aagcgggagg attgcttcag cccaggaggt tgaggctgca gtgagtcag
5351 actgtgccgc tgcccttgag cctgggtaac agagcaagac cctatctcaa
5401 aacaaaacaa caaacaacaa aacaaaacaa aaccaataaa ccaaaaacat
5451 ttatctaaac aataaaaataa aggacagata taatcaccga atatatgata

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FIG. 1B

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5501 gcatttttaa ttgaaaaagc actaatgact acaatggatt ataaaacatc
5551 aaatacataa aattcttaag ttctctctaa taccaaatac aaagcacatt
5601 ggtcttttgg ttttacttgg gcaccaatgc atgctgaaaa agagtcgttc
5651 atttttttag gtagttttag gttcacagca aaattgagca gaaggtagag
5701 ttctcatgtg tctctttgct cctcaccctg cccccagcct cccactatc
5751 aacacccccca cactacagtg gtagatttat tacaatccct gaaccacag
5801 tgacacatca ctatcaccca aagttcatag cgtacagcag ggttctactt
5851 tgggcagtac attccatggg ttgggataaa tgtgtaatga tgtctccacc
5901 atcacagcat caggcagagt agtttctactg ctctaacaaa atcctctgcc
5951 tattcacccc tctcattaaa gccaaacact ctgtttcctt ttttctttt
6001 agagacagtg tctcgctctg tcaaccaggc tgaagtgcaa tggcaatcac
6051 agcccattgc agcctccaac tcctgggctc aagtgtcctt cctatctcag
6101 cctccagtgg ctacgactgc aggcatacgg caacggcacc caactaattt
6151 tttgtagaga tagggtcttg ctatgttgac caggatggtc ttgaactctt
6201 ggtcctgcct tagcctccca gagctctggg attacaggcg tgaaccaccg
6251 tgcccgtccc aaacactctg ttctgacctg cttttaaaca actgaccctt
6301 ggatgcattc aaaggatcag ggtgtctgaa actggcctct gcagcaggac
6351 cttccttctt acacatctcc cagtggccag tgtgaggatt ctccccacaa
6401 gaaaccactg gagggggcct cctcctgtcc ggggtttggg ctgtacaagg
6451 agcatcatgg acctggctca ggccctcagg ggggccctgg gctggggaaa
6501 atgtgggata gcatcgaggc agtcccactc ctaccagggg ccgggctaga
6551 cctggggaca gtctcagcca tctcctcgct gcgtccacac aattccaccc
6601 ccacccccac cccagGCTG GCCCTCACGG AAGAACAACA GCTGATGTTT
6651 GAGAAACTGA CTCTGTATTG CGACAGCTAC ATCCAGCTCA TCCCCATTTC
6701 CTTCGTGCTG Ggtgagttcc ccttctggc tgttccgggt cctgtgtgcc
6751 gccagggtc cagacaggcc agggaggat cagcaggagc tgcggcaagg
6801 ggctggggag ggggcggggg aacgccagcg gcaggctggc gcctctctgt
6851 agggaaaggt gcgactgca gccagagaaa ctgaagttag acgttaggta
6901 agacgtcctg ccgttagcaa tgaaaacccc attttctgag ggaagcgctg
6951 acatcatggt ccctggagcc cctgcgcggg aggggagggg gtctggcgga
7001 tttctgggac cagcaggggg acccccgggt gacagaaccc ttggggctct
7051 cgcgcctcca tgagaggctc tgcctgcctc tcgctcccga gcgccttcca
7101 ggagggctgg gggctaggcc cgctcgcagc agaaagctgg aggagccgag
7151 gcatcgccgg gcgctggggc ctgggctctg gccgcagact ggcccctcgc
7201 cctcggcccc ccgccccctc tgcccagGCT TCTACGTGAC GCTGGTCTGT
7251 ACCCGCTGGT GGAACCACTA CGAGAACCCTG CCGTGGCCCG ACCGCTCAT
7301 GAGCCTGGTG TCGGGCTTCG TCGAAGGCAA GGACGAGCAA GGCCGGCTGC
7351 TCGGGCGCAC GCTCATCCGC TACGCCAACC TGGGCAACGT GCTCATCCTG
7401 CGCAGCGTCA GCACCGCAGT CTACAAGCGC TTCCCCAGCG CCCAGCACCT
7451 GGTGCAAGCA Ggtgggcgga ccgggagcaa cggggaggca ccgggcagag
7501 ccaggggccc agatgggcgc ggcaggaacg gaagatgggt ggagccaaag
7551 tcacccggac tcgggggact gggtagagcc aggagtggg tgtggtcaag
7601 atttgggggt ccaattgggc gggacagagt cgggtgtctg aaggtggggc
7651 gaggccagga gcccaccctc cgagagtagg agtctgaggc agggataagg
7701 acccttgagg gataatggaa agaagggtga cggcttggga actggtgagg
7751 tactagggtc tacttccctc tgcccttgcc cctcttgatc tccggtttcc
7801 actctggagg tatgggacat tggctctga cccccctca gcctggcctg
7851 acctggtcct ggttaataag acagaccag gctaggcgtg gtggctctcg
7901 cctgtaatcc cagtgtttta ggaggcaaag gtgggaagat cgcttgagcc
7951 cagctgtttg agacgcacct gagcaacata gcgagacccc catctctaca
8001 aaaacattaa aaattagcag ggcatgggtg cgtgtgcctg tagtctgagg
8051 ctgagtatcg ggaggctgag gcaggaggat cacttgagcc cagcagttcc
8101 aggtgcagat gcgctaagat cgcaccgctg cactccaacc tcggtgacag
8151 agccagaccc ttctcttgga aataaataaa tacctgccc acatgtctcag
8201 cacagaacag cacctagtag gtgctcagaa attttttgt tgttgaaaga

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FIG.1C

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8251 aagaggatgg caaaggagtg ctgaggttcc tataggtcag caggtgccgg
 8301 ccatcccttc tgcaggttct cccaccacc gccttcttca ctccactctg
 8351 cagGCTTTAT GACTCCGGCA GAACACAAGC AGTTGGAGAA ACTGAGCCTA
 8401 CCACACAACA TGTTCTGGGT GCCCTGGGTG TGGTTTGCCA ACCTGTCAAT
 8451 GAAGGCGTGG CTGGAGGTC GAATCCGGGA CCCTATCCTG CTCCAGAGCC
 8501 TGCTGAACgt gagccactg tacagacagg gctgccgcag agtgggaagg
 8551 gttgtggtcc acaggaaaca aggtttccta caaagagaag ccttgggccc
 8601 ctgaggggtct tccgagagcc ggagggtggg ttgcagaatc tttccaaca
 8651 gcaatccaca gaccgaggtg gtcccttatc agaggcccct ccctcttctc
 8701 caagtctgtg aggtcctggt tcccttttga tagatgagga agctgagaca
 8751 caaagaggtt tagtgagctt cccatggcca cacagccagg aatggaccat
 8801 aggtaccagg ccctggtacc tggagaagag gtgggggcga gccaggggtg
 8851 ggggcaggtg gtgttcagaa ccccatcccc ctcttctgcc cccagGAGA
 8901 TGAACACCTT GCGTACTCAG TGTGGACACC TGTATGCCTA CGACTGGATT
 8951 AGTATCCAC TGGGTATAC ACAGgtgagg actaggctgg tgaggctgcc
 9001 cttttgggaa actgaggcta gaaggacca ggaagcagct ggggtgggaa
 9051 gggctcacct agaggctaag tggctcccct gggagtggg tccacacttt
 9101 gaagttgggt ctggactttg aagtgccaa gttctaagag ccaggctcct
 9151 gcctggccca gtccagtaga ggcaatgtga ttatcccat attaaagaga
 9201 gggtggcagg gcacagtggc tcatgcatgt aatcccagca ctttgggaa
 9251 ctgaggcagg tggatcacct gaggtcagga gttcgagacc agcctggcca
 9301 acatggtgaa accccatctc tactgaaaat acagaattag ctgtgtggtg
 9351 gtgcacgcct gtaatcacag ctacttggga ggctgaggca ggagaatagc
 9401 ttgaacccgg gaggtggagg ttgcagttag ctgagatcat gccactgcac
 9451 tccagcctgg gcgacacagc aagactctgt ctcaaacaaa caaacaaaa
 9501 aacaaacaaa caaacaaaa aaggggttaa cagagcccct aagtcacata
 9551 agtgtgcaag tcagaacaag gccttgggtc cctgtctcag actcccagcc
 9601 cctggagcat cctgatttca gggttccac cttagccctt gctaccacat
 9651 cctcctctc ctcctcctcc tcccagGTGG TGACTGTGGC GGTGTACAGC
 9701 TTCTTCTGA CTTGTCTAGT TGGGCGGCAG TTTCTGAACC CAGCCAAGGC
 9751 CTACCCCTGGC CATGAGCTGG ACCTCGTTGT GCCCGTCTC ACCTTCTGC
 9801 AGTTCTTCTT CTATGTTGGC TGGCTGAAGG TGGGCTCTC CAGGGCCCTG
 9851 CTGGGCTGGA GGCATGGCCA GAGGGTCTC GGCCAGCAGC TGCTTGAGAC
 9901 GAGGATGCAG TGTCAGGAAA GGAAGGTCTC ACGGGTAGAA AGCAGCCAGG
 9951 CGTGGTGGCG CACACCTGTA ATCCAGCTA CTCGGGAGGC TGAGGCAGGA
 10001 GAATCGCTTG AACCCGGGAG GCGGAGGTG TGgtgagttg agatcgtgcc
 10051 actgcactcc agcctgggca aaagaatgaa actctatctc aaaaacaaca
 10101 acaacaacaa aacaaagccc taaggttcag aagcccctgc ctttagaag
 10151 cagagcgaac actctcctat taagatgctg ttgggtgtct ttttactca
 10201 gtagctgtcc agtattctcc acacagcata atagacagat tctaatacaa
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 10301 tcctaattta tgaatgggtt agtatgctct gcttctgcat tgagacaaaa
 10351 tacagagaga gagaaagatc tatcttaatc ccgccccatt ttagttggaa
 10401 aaaaacttta ttaaatacagg caagtaaaat ccgccaagga ttgnnnnnnn
 10451 nnnagatggt ctgaatcaga gagttttctc tcgagctctt tatctttcct
 10501 tccttatggt gccacccac tctctctcac ttctacctt cttttatctt
 10551 ttggtaatgg ggggtgaagt ctctgtctct gcccttctg tcaactgtac
 10601 acacacacac acacacacac acacacacac acacacacac attcatattc
 10651 ctctaaattc cccctgcacc cccagttatc tttggtttct gcagatcaaa
 10701 acaaatcaca cttttatgct tgaaattctc cagggtgcc cagtggcctg
 10751 caagatgtcc cctggacccc taaggcagac gcgtgtcacc tcttcggggc
 10801 tttgttaggg catttttag gttgctatcc aggaatctgc ccacctagac
 10851 tgccctttag ttcagcccag cttcagtata tatctctggt gcatgaatga

FIG.1D

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10901 ataaaattat gcaactccag gtaagataca tgaggtgaga taaaggcagt
10951 gactcagccg agtgatacac tcagggacag ctgtgggtgt tcaggggaag
11001 actggctcag aagagttaga ggggctgtgt ccagaagtgt gtgggtgcct
11051 acaagtgtgg ggggctggag ccctaaactc tgcctttgaa gacagtggct
11101 aggcaggaag ggcttcatgg ggtgtggaaa tagcagcagc tgagggttaa
11151 agggggaagc tggctttgag gaggctctgc tgagggttta cagagcctca
11201 cctgtcccca agGTGGCAGA GCAGCTCATC AACCCCTTIG GAGAGGATGA
11251 TGATGATTT GAGACCAACT GGATGTGCGA CAGGAATTTG CAGgtatggg
11301 gagagggaga gaaaccatac catggacctt ccccaaagtg gacccaaaga
11351 gagctcctcc ctctgcagc cagtcattca ctacacaggt tctcacctca
11401 atctttgagg ctgcaggcag gcacccatct ccccatitca caggcagga
11451 aactgaggtc cagagagagg gagagatCcc tccaagtcac caggcacata
11501 caaggtcctg cctgggatga tctttctgtg ggacttcttc tgtccctggt
11551 gaccagGTGT CCTGTGTCG TGTGGATGAG ATGCACCAGG ACCTGCCTCG
11601 GATGGAGCCG GACATGTACT GGAATAAGCC CGAGCCACAG CCCCCCTACA
11651 CAGCTGCTTC CGCCCAGTTC CGTCGAGCCT CCTTTATGGG CTCCACCTTC
11701 AACATCAGgt gtggccagag ccagggggct ggggtgggaag cccctcctag
11751 tgcaggggtc tgcttaggaa cttagaatag cactagttaa tgcatacagg
11801 ttgcttcagt aagtgtcagg cactgtacta tgcctttat aaacattaac
11851 tatttttttc ctccaataa ttctggttg ttatcccaag ttthcagata
11901 attaaagtac aggttcagag agagtaagtt gtccaaggcc acatagctac
11951 caaatgggtc atttgctact cgaaggacag cctatgatca gtgatgcagt
12001 ggaacgttag gacctggctc ttgtcatcca gaactatgtt ttcttttctt
12051 tttgagacag tatctcgctc tgtcgcccag gttggagcgc agtggcgtga
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12201 aatttttcta cttttagtag agatgaggtt tcaccatgtt ggccaggctg
12251 gtctccaact cctgaccagt aatctgcccg ctttggcctc ccaaatgtct
12301 ggaattatag gtgtcaaaac tatgttttct gataagctac gatgcttggg
12351 tgggaagtgg aagtggggtt ccctgggatg ggggaggggc agcaaagtcc
12401 cagcaggcag ccaggccatc acagggtacct cctgaattga cttgtccta
12451 ccgagtaaaag ggctcaggcc acccacagca gccagactta tccccacatg
12501 gtcccacttc cctgattcca tctgaatccc tcttgagctg cagtgggctg
12551 aagggtatc ccagctggct ctttctcccc aggacaacag agttgaaagt
12601 gccctggaga gtgttgggca catgtcaggg ttcatactca aggttttctt
12651 ccacgggtatc cagtgtgtt ctgcttgggt ctttctttt tttttttta
12701 aacggagttt cactcttgtt gccagagct ggagtgcagt ggcataatct
12751 cggctcactg caacctccgc ctcccagatt caagcaattc tcctgcctca
12801 gcatcctgag tagctgggat tataggtgcc agccaccaag cccggctaatt
12851 ttttgattt ttagtagaga cagtttcacc atgttgcca ggctggctc
12901 gaactcctga cctcaggtga tccacctcc tcagcctccc aaagtgtctg
12951 gattacatgt gtgagccact gtgcctggct gcttgttctt ttaagaacca
13001 aatatcctac tagactgcaa tgcagtttaa ctacagtcta tagatactgt
13051 gaggaatggt tgggaaggct atcaaatgaa ggctggaggc ttgcttaggt
13101 cagaaacatt tctggaggat gactttgagc cctaactggt ctgtacccca
13151 gcagctgaag gttgttgagg gatggggagg gctgaaaaca gaacgataaa
13201 gcatagacct tgtctccaag gaatgcacaa tttatggagg gagctcaaac
13251 ccaagtctca aactctggat acaaggatca agtactgga tgtccagaaa
13301 agggacagaa catggaacac agtcatattt gtctgcatgg gaggcggtt
13351 ccagctgggt ctggagctga gccatggaac atgggaagaa tctgaacttg
13401 ggcaagggca ggccatactc tctggtagat aagctttcct tgcagggtaa
13451 aggtctgggt ctcccgggat gcctgttgct aggaagtcaa atttctctt
13501 gtggatgtca ctcccagttg gaaccacaaa ttcttgcat tgcccagagt
13551 cactcatggg cctcatctga accactcatg ccagggcacc agtgtttctg

FIG.1E

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13601 actgcctgga gtgaggggtt ttacagggga agtgaatgat gaggaggcct
13651 ttacacgcca ggaggggttg ttgcgggggt tggatgttaa ctctggtcaa
13701 gagggaaatca acaaacagtg aggtgagctg ggcctggagg gatcaccggg
13751 aggtacagta cagatcagga gagaggtgag agctggggca tgggtaggaa
13801 gacggtgttg ccttggttg ggccaactga gagagaggag cgggggtgag
13851 ggagaagtaa ggccaggtgt tggctctttg tccactggct cagccctgca
13901 tctcctgttt ctttccagCC TGAACAAAGA GGAGATGGAG TTCCAGCCCA
13951 ATCAGGAGGA CGAGGAGGAT GCTCACGCTG GCATCATTGG CCGCTTCCTA
14001 GGCCTGCAGT CCCATGATCA CCATCCTCCC AGGGCAAACCT CAAGGACCAA
14051 ACTACTGTGG CCCAAGAGGG AATCCCTTCT CCACGAGGGC CTGCCCAAAA
14101 ACCACAAGGC AGCCAAACAG AACGTTAGGG GCCAGGAAGA CAACAAGGCC
14151 TGGAAGCTTA AGGCTGTGGA CGCCTTCAAG TCTGCCCCAC TGTATCAGAG
14201 GCCAGGCTAC TACAGTGCCC CACAGACGCC CCTCAGCCCC ACTCCCATGT
14251 TCTTCCCCCT AGAACCATCA GCGCCGTCAA AGCTTCACAG TGTCACAGGC
14301 ATAGACACCA AAGACAAAAG CTTAAAGACT GTGAGTTCTG GGGCCAAGAA
14351 AAGTTTTGAA TTGCTCTCAG AGAGCGATGG GGCCTTGATG GAGCACCAG
14401 AAGTATCTCA AGTGAGGAGG AAAACTGTGG AGTTTAACCT GACGGATATG
14451 CCAGAGATCC CCGAAAATCA CCTCAAAGAA CCTTTGGAAC AATCACCAC
14501 CAACATACAC ACTACACTCA AAGATCACAT GGATCCTTAT TGGGCTTGG
14551 AAACAGgtc tgtcctccac ctgaaccagg ggcactgcat tgcctgtgc
14601 cccaccccag cttcccttgc tctgagccta cccttcctcc acaatttct
14651 agggttccat cactgccaga gcacactgga cctacgccc gactggctt
14701 ggggtatata cttggccacc ttcacagga tcctagggaa gtgttcggga
14751 ccttttctca cttcaccctg gtatcacccg gaagacttct tgggaccagg
14801 tgaaggaaga tgaggttggt ctgaccagaa tgctgctgga gaactgccc
14851 agggctgaca ggccaggctt agctgagcag atgttatcac tggcccaac
14901 ttactttgag caaggggtggc tgacccaaaa ccatgaggtg gcagtcagct
14951 ggatgacaga tgaacacttc ccccataact atttagggta gtacacaagc
15001 actacaggaa aggggtggcag gaactgcctc actcctagga actggtagat
15051 ggtgaggttg aggggtgtcca gcgccattag gtcattttct cactgcctgg
15101 gaacctcacc aaaatacttc ttgcttcctt ggggtcagcc caaagctgtc
15151 acaaaatcag atatttcctt ttattccaga tttcctggac actgtcacc
15201 aattataaac accccacttc agacccaatc acgtgggagg aagtgtact
15251 tcctttttct ggattctcaa gcagtactt tcacgggtca gaacacgag
15301 ctattatgat tgaaacctta aaagggcaac aatttcaatc ttgcttctag
15351 gctaagacag gaacttggca aacatctgtg gcctgttcag caaaggatgt
15401 tcataattta gaacttgtc ttgggctggg tgtggaggca agtgaatcac
15451 aggaggtcag gagtttgaga ccaacctggc caacatgatg aaaccccatc
15501 tctaccaaaa aaaatacaaa tcagctggcc gtcgtggtgt gcctgtagtc
15551 ccaacgcagg aggttgaggg gagaattgct tgaacccagg aggtggtggt
15601 tgcatgaga ttgagcaact gcaatccagc ctgggagcag gagtgagact
15651 gtctcaaaaa aaaaaaaaaa aggatcgtct caacctttgc cctcctactg
15701 caacattttg gtatttgaaa tgaagggtacc ttccatactt atgtgttaa
15751 tactttcatt ctactagGG ATGAAGCACA TTCC7AACCT GCTTCC7AAT
15801 GGGGATGCTT CGCCAGCCAG GTCCTCACCT GTGTGTACAC CAGCAGGACA
15851 CTGATCCAGT CACAGCCATA CAGCTGTCCA CACTGAAGAA CGTGTCTTAC
15901 AACAGCCTGA ATCAAATGGT TAGCTTAATA GATAAAAATC CCAGACTACT
15951 TCAGCCTTTA ATGCCITTTA TTCATAAAAA CTGTGAAAGC TAGACTGAAC
16001 CATTGGAAAC ATTTAACTCA GACTCTGGAT TCAGAGTCGG GAACCCCTAG
16051 TTCTATCTGA ATCCAAGACA GCCACACCTT AGTATACTGC CCAAATAAT
16101 GAGTTTAATA AATACAAATA CTCGT (SEQ.ID.NO.:1)

FIG.1F

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CAGGGAGTCCCACCAGCCTAGTCGCCAGACCTTCTGTGGGATCATCGGAC 50
CCACCTGGAACCCACCTGACCCAAGCCCACCTGCTGCAGCCCACTGCCT 100
GGCCATGACCATCACTTACACAAGCCAAGTGGCTAATGCCCGCTTAGGCT 150
CCTTCTCCCGCTGCTGCTGTGCTGGCGGGGAGCATCTACAAGCTGCTA 200
TATGGCGAGTTCTTAATCTTCTGCTCTGCTACTACATCATCCGCTTTAT 250
TTATAGGCTGGCCCTCACGGAAGAACAACAGCTGATGTTTGAGAACTGA 300
CTCTGTATTGCGACAGCTACATCCAGCTCATCCCCATTTCTTCGTGCTG 350
GGCTTCTACGTGACGCTGGTGTGACCCGCTGGTGAACCAAGTACGAGAA 400
CCTGCCGTGGCCGACCGCCTCATGAGCCTGGTGTGGGCTTCGTCAAG 450
GCAAGGACGAGCAAGGCCGGCTGCTGCGGCGCAGCTCATCCGCTACGCC 500
AACCTGGGCAACGTGCTCATCCTGCGCAGCGTCAGCACCGCAGTCTACAA 550
GCGCTTCCCCAGCGCCCAGCACCTGGTGAAGCAGGCTTTATGACTCCGG 600
CAGAACAACAAGCAGTTGGAGAACTGAGCCTACCACACAACATGTTCTGG 650
GTGCCCTGGGTGTGGTTTGCCAACCTGTCAATGAAGGCGTGGCTTGGAGG 700
TCGAATCCGGGACCTATCCTGCTCCAGAGCCTGCTGAACGAGATGAACA 750
CCTTGCGTACTCAGTGTGGACACCTGTATGCCTACGACTGGATTAGTATC 800
CCACTGGGTATACACAGGTGGTACTGTGGCGGTGTACAGCTTCTTCT 850
GACTTGTCTAGTTGGGCGGCAGTTTCTGAACCCAGCCAAGGCCTACCCTG 900
GCCATGAGCTGGACCTCGTTGTGCCCGTCTTACGTTTCTGCAGTTCTTC 950
TTCTATGTTGGCTGGCTGAAGGTGGCAGAGCAGCTCATCAACCCCTTTGG 1000
AGAGGATGATGATGATTTTGGACCAACTGGATTGTGACAGGAATTTGC 1050
AGGTGTCCCTGTTGGCTGTGGATGAGATGCACCAGGACCTGCCTCGGATG 1100
GAGCCGGACATGTACTGGAATAAGCCCGAGCCACAGCCCCCTACACAGC 1150
TGCTTCCGCCCAGTTCCGTCGAGCCTCCTTATGGGCTCCACCTTCAACA 1200
TCAGCCTGAACAAAGAGGAGATGGAGTTCCAGCCCAATCAGGAGGACGAG 1250
GAGGATGCTCACGCTGGCATCATTGGCCGCTTCTAGGCCCTGCAGTCCCA 1300
TGATCACCATCCTCCCAGGGCAAACCTCAAGGACCAAACCTACTGTGGCCCA 1350
AGAGGGAATCCCTTCTCCACGAGGGCCTGCCCAAAACCAAGGCAGCC 1400
AAACAGAACGTTAGGGGCCAGGAAGACAACAAGGCCTGGAAGCTTAAGGC 1450
TGTGGACGCCTTCAAGTCTGGCCCACTGTATCAGAGGCCAGGCTACTACA 1500
GTGCCCCACAGACGCCCCCTCAGCCCCACTCCATGTTCTTCCCCCTAGAA 1550
CCATCAGCGCCGTCAAAGCTTCAAGTGTACAGGCATAGACACCAAAGA 1600
CAAAAGCTTAAAGACTGTGAGTTCTGGGGCCAAGAAAAGTTTTGAATTGC 1650
TCTCAGAGAGCGATGGGGCCTTGATGGAGCACCCAGAAGTATCTCAAGTG 1700
AGGAGGAAAACCTGTGGAGTTTAACTGACGGATATGCCAGAGATCCCCGA 1750
AAATCACCTCAAAGAACCCTTGGAAACAATCACCACCAACATACACACTA 1800
CACTCAAAGATCACATGGATCCTTATTGGGCCCTTGGAAAACAGGGATGAA 1850
GCACATTCTAACCTGCTTCTAATGGGGATGCTTCGCCAGCCAGGTCTCT 1900
CACCTGTGTGTACACCAGCAGGACACTGATCCAGTCACAGCCATACAGCT 1950
GTCCACACTGAAGAACGTGTCCTACAACAGCCTGAATCAAATGGTTAGCT 2000
TAATAGATAAAAAATCCCAGACTACTTCAGCCTTTAATGCCTTTTATTCAT 2050
AAAAACTGTGAAAGCTAGACTGAACCATTGGAAAACATTTAACTCAGACTC 2100
TGGATTGAGAGTCGGGAACCCCTTAGTTCTATCTGAATCCAAGACAGCCAC 2150
ACCTTAGTATACTGCCCAAACTAATGAGTTTAAATAATAAATACTCGT 2200
TAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA(SEQ.ID.NO.:2)

FIG.2

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MTITYTSQVANARLGSFSRLLLCWRGSIYKLLYGEFLIFLLCYIIIRFIY 50
RLALTEEQQLMFEKLTLYCDSYIQLIPISFVLGFYVTLVVTRWWNQYENL 100
PWPDRMLSLVSGFVEGKDEQSRLLRRTLIRYANLGNVLIILRSVSTAVYKR 150
FPSAHLVQAGFMTPAEHKQLEKLSLPHNMFVWPVWFANLSMKAWLGGR 200
IRDPILLQSLLNEMNLTQTQCGHLYAYDWISIPLVYTQVTVAVYSFFLT 250
CLVGRQFLNPAKAYPGHELDLVVPVFTFLQLFLYVGWLKVAEQLINPFGE 300
DDDDFETNWI VDRNLQVSLLAVDEMHQDLPRMEPDYWNKPEPQPPYTAA 350
SAQFRRASFMGSTFNISLNKEEMEFQPNQDEEDAHAGIIGRFLGLQSHD 400
HHPPRANSRTKLLWPKRESLLHEGLPKNHKAAKQNVRGQEDNKAWKLKAV 450
DAFKSGPLYQRPGYYSAPQTPLSPTPMFFPLEPSAPSKLHSVTGIDTKDK 500
SLKTVSSGAKKSFELLES DGALMEHPEVSQVRRKTVEFNLTDMPEIPEN 550
HLKEPLEQSPTNIHTTLKDHPYWALENRDEAHS (SEQ.ID.NO.:3)

FIG.3

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CAGGGAGTCCCACCAGCCTAGTCGCCAGACCTTCTGTGGGATCATCGGAC 50
CCACCTGGAACCCACCTGACCCAAGCCCACCTGCTGCAGCCCACTGCCT 100
GGCCATGACCATCACTTACACAAGCCAAGTGGCTAATGCCCGCTTAGGCT 150
CCTTCTCCCGCCTGCTGCTGTGCTGGCGGGCAGCATCTACAAGCTGCTA 200
TATGGCGAGTTCTTAATCTTCTGCTCTGCTACTACATCATCCGCTTTAT 250
TTATAGGCTGGCCCTCACGGAAGAACAACAGCTGATGTTTGAGAACTGA 300
CTCTGTATTGCGACAGCTACATCCAGCTCATCCCCATTTCTTCGTGCTG 350
GGCTTCTACGTGACGCTGGTCGTGACCCGCTGGTGGAACCAAGTACGAGAA 400
CCTGCCGTGGCCCGACCGCCTCATGAGCCTGGTGTCGGGCTTCGTGCAAG 450
GCAAGGACGAGCAAGGCCGGCTGCTGCGGCGCAGCTCATCCGCTACGCC 500
AACCTGGGCAACGTGCTCATCTGCGCAGCGTCAGCACCGCAGTCTACAA 550
GCGCTTCCCCAGCGCCAGCACCTGGTGCAAGCAGGCTTTATGACTCCGG 600
CAGAACACAAGCAGTTGGAGAACTGAGCCTACCACACAACATGTTCTGG 650
GTGCCCTGGGTGTGGTTTGCCAACCTGTCAATGAAGGCGTGGCTTGGAGG 700
TCGAATCCGGGACCCTATCCTGCTCCAGAGCCTGCTGAACGAGATGAACA 750
CCTTGCGTACTCAGTGTGGACACCTGTATGCCTACGACTGGATTAGTATC 800
CCACTGGTGTATACACAGGTGGTGACTGTGGCGGTGTACAGCTTCTTCT 850
GACTTGTCTAGTTGGGCGGCAGTTTCTGAACCCAGCCAAGGCCTACCCTG 900
GCCATGAGCTGGACCTCGTTGTGCCCGTCTTACGTTTCTGCAGTTCTTC 950
TTCTATGTTGGCTGGCTGAAGGTGGGCTCTCCAGGGCCCTGCTGGGCTG 1000
GAGGCATGGCCAGAGGGGTCTAGGCCAGCAGCTGCTTGAACGAGGATGC 1050
AGTGTACAGAAAGGAAGGTCTACGGGTAGAAAGCAGCCAGGCGTGGTGG 1100
CGCACACCTGTAATCCCAGCTACTCGGGAGGCTGAGGCAGGAGAATCGCT 1150
TGAACCCGGGAGGCGGAGGTTGTGGTGGCAGAGCAGCTCATCAACCCCTT 1200
TGGAGAGGATGATGATGATTTTGAACCAACTGGATTGTGACAGGAATT 1250
TGCAGGTGTCCCTGTTGGCTGTGGATGAGATGCACCAGGACCTGCCTCGG 1300
ATGGAGCCGGACATGTACTGGAATAAGCCCGAGCCACAGCCCCCTACAC 1350
AGCTGCTTCCGCCAGTTCCGTCGAGCCTCCTTTATGGGCTCCACCTTCA 1400
ACATCAGCCTGAACAAAGAGGAGATGGAGTTCCAGCCCAATCAGGAGGAC 1450
GAGGAGGATGCTCACGCTGGCATCATTGGCCGCTTCTTAGGCCTGCAGTC 1500
CCATGATCACCATCCTCCCAGGGCAAACTCAAGGACCAAACTACTGTGGC 1550
CCAAGAGGGAATCCCTTCTCCACGAGGGCCTGCCCAAAAACCACAAGGCA 1600
GCCAAACAGAACGTTAGGGGCCAGGAAGACAACAAGGCCTGGAAGCTTAA 1650
GGCTGTGGACGCCTTCAAGTCTGGCCCACTGTATCAGAGGCCAGGCTACT 1700
ACAGTGCCCCACAGACGCCCTCAGCCCCACTCCCATGTTCTTCCCCCTA 1750
GAACCATCAGCGCCGTCAAAGCTTCACAGTGTACAGGCATAGACACCAA 1800
AGACAAAAGCTTAAAGACTGTGAGTTCTGGGGCCAAGAAAAGTTTTGAAT 1850
TGCTCTCAGAGAGCGATGGGGCCTTGATGGAGCACCCAGAAGTATCTCAA 1900
GTGAGGAGGAAAACCTGTGGAGTTTAACTGACGGATATGCCAGAGATCCC 1950
CGAAAATCACCTCAAAGAACCTTTGGAACAATCACCACCAACATACACA 2000
CTACACTCAAAGATCACATGGATCCTTATTGGGCCCTTGGAAAACAGGGAT 2050
GAAGCACATTCTAACCTGCTTCCTAATGGGGATGCTTCGCCAGCCAGGT 2100
CCTCACCTGTGTGTACACCAGCAGGACACTGATCCAGTCACAGCCATACA 2150
GCTGTCCACACTGAAGAACGTGTCCTACAACAGCCTGAATCAAATGGTTA 2200
GCTTAATAGATAAAAATCCCAGACTACTTCAGCCTTTAATGCCTTTTATT 2250
CATAAAAACCTGTGAAAGCTAGACTGAACCATTTGGAACATTTAACTCAGA 2300
CTCTGGATTGAGAGTCGGGAACCTTAGTTCTATCTGAATCCAAGACAGC 2350
CACACCTTAGTATACTGCCCAAACTAATGAGTTTAATAAATACAAATACT 2400
CGTAAAAAAAAAAAAAAAAAAAAAAAAAAAAA(SAQ. ID. NO. : 4)

FIG.4

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MTITYTSQVANARLGSFSRLLLCWRGSIYKLLYGEFLIFLLCYYIIRFIY 50
RLALTEEQQLMFEKLTLYCDSYIQLIPISFVLGFYVTLVVTRWWNQYENL 100
PWPDRMLSLVSGFVEGKDEQGRLLRRTLIRYANLGNVLILRSVSTAVYKR 150
FPSAQHLVQAGFMTPAEHKQLEKLSLPHNMFVWPWWFANLSMKAWLGGR 200
IRDPILLQSLLNEMNLTQTQCGHLYAYDWISIPLVYTQVVTAVYSFFLT 250
CLVGRQFLNPAKAYPGHELDLVVPVFTFLQFFFYVGWLKVGLSRALLGWR 300
HGQRGHGQQLLETRMQCQERKVSRESSQAWWRTPVIPATREAEAGESLE 350
PGRRLWWQSSSSTPLERMMILRPTGLSTGICRCPCWLWMRCTRTCLGW 400
SRTCTGISPSHSPPTQLLPPSSVEPPLWAPPSTSA (SEQ.ID.NO.:5)

FIG.5

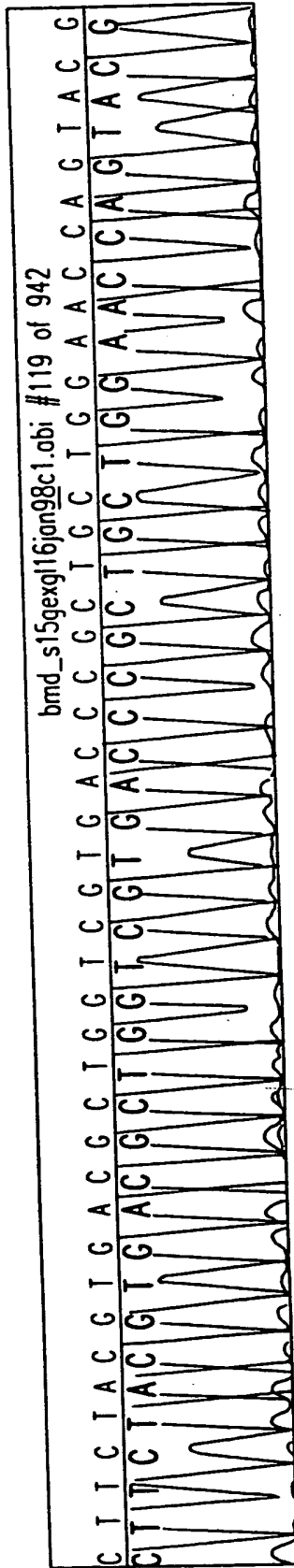


FIG. 6A

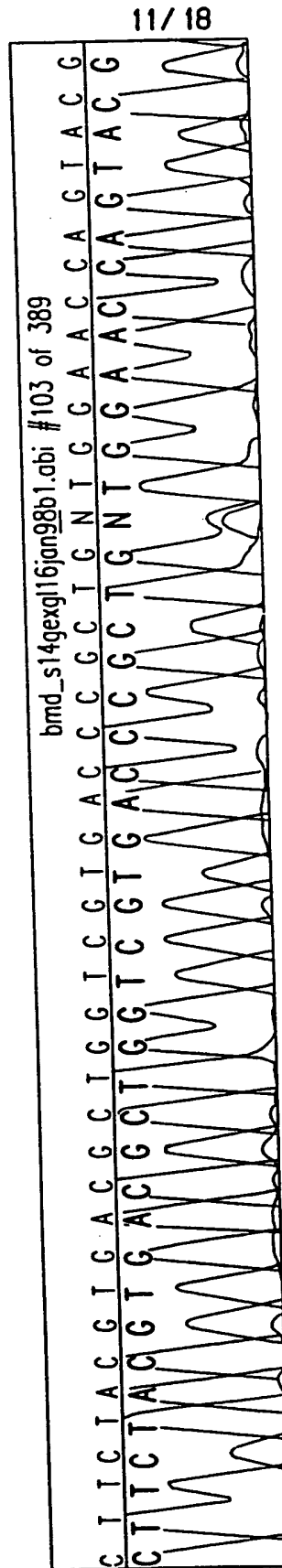


FIG. 6B

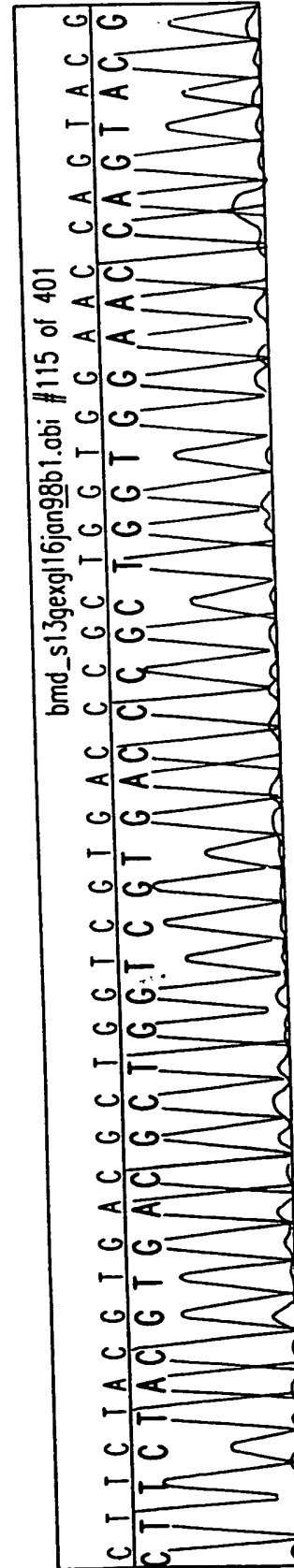


FIG. 6C

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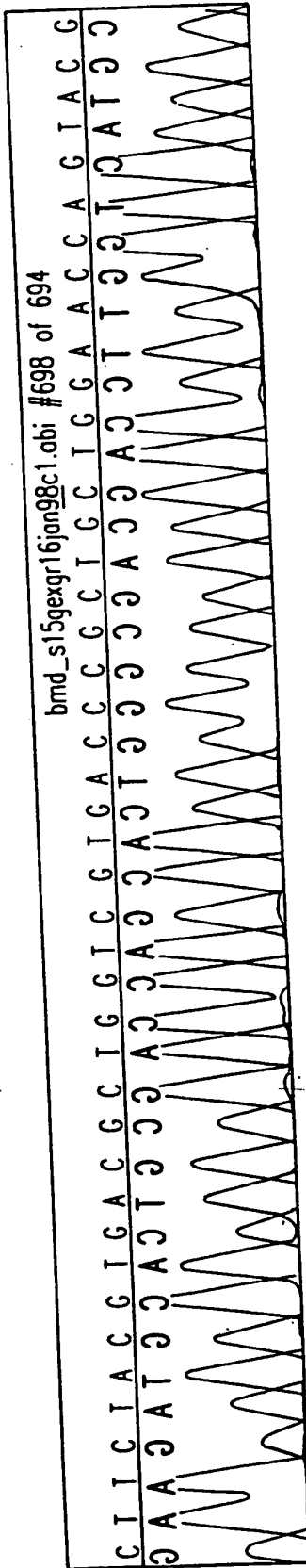


FIG.6D

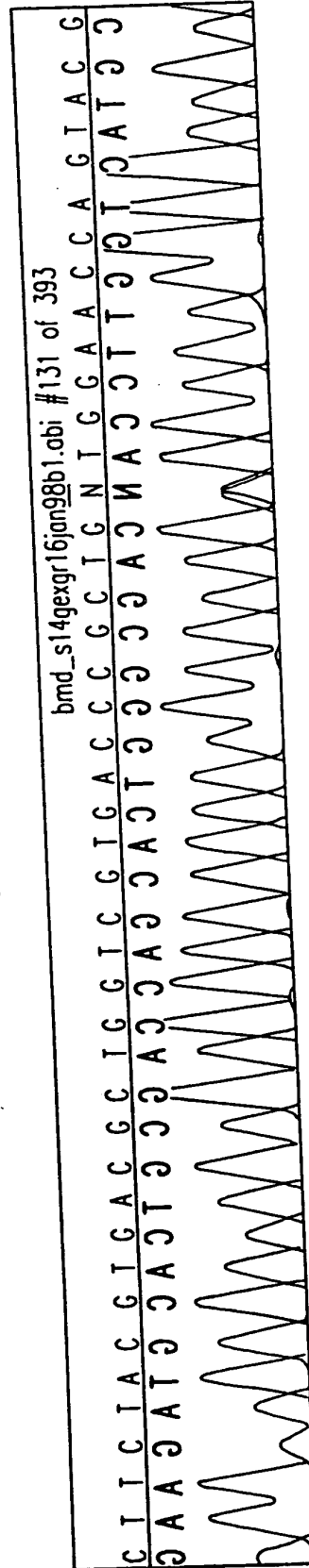


FIG.6E

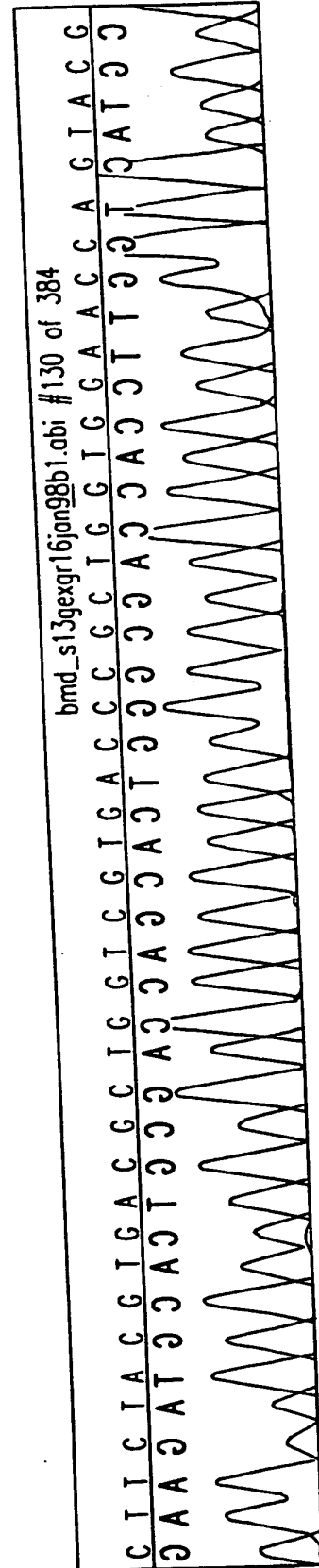


FIG.6F

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GenBank/SwissProt
accession numbersProtein sequenceSEQ.ID.NO.

CGlCE_protein

IPISFVLGFY VTLVVTRW~~WN~~ QYENLPWPDR 2 (part) *same*

af016687 (PID:g2315833)	IPLTFMLGFE VTIIVGRW ND IFLNIGWVDN 28 <i>mutated</i>
z73105 (PID:e242363)	IPLTFMLGFE VTIIVRRW ND IFANLGWVEN 29
z73422 (PID:e244423)	IPLEFVLGFE VTIVVDRW TK LWRTVGFIDD 30
z73422 (PID:e244542)	IPLEFVLGFE VTTVVNRW TK LYQTIGFIDN 31
p34577	VPLDWMLGFE IAGVLRREW Y LYDIIGFIDN 32
p34672	IPLNFMLGFE VTAVVNRW TY LYQIIGFIDN 33
p34319	LPLNFVLGFE CNIIIRRW LK LYTSLGNIDN 34
z68335 (PID:e217363)	IPINFMLGFE VTTVINRW MT QFANLGMIDN 35
z68753 (PID:e218704)	IPLTFLLGFE VSFVVARW GS ILNGIGWIDD 36
af025458 (PID:e2429439)	IPVTFMLGFY VSIVYNRW TK VFDNVGWIDT 37
u28412 (PID:g849242)	LPLTFMLGFE VTTVFERW RS ALNVMPFIES 38
u70848 (PID:g1572760)	IPLTFLLGFY VSNVSRW WR QFETLRWPED 39
z81074 (PID:e351507)	IPLTFLLGFY VSNVVARW WR QFETLYWPED 40
q09379	IPLTFLLGFY VAMIVRRW WD CCQLISWPDH 41
z72509 (PID:e239377)	IPLSFLGFE VSLIVARW WE QFNCISWPK 42
z83221 (PID:e349023)	VPMQPMLGYE IGMVGERW GE SFENVSYIEK 43

FIG.7

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1 GTGCCAAGCCATGACTATCACCTACACAAACAAAGTAGCCAATGCCCGCCTCGGTTTCGTT 60
1 M T I T Y T N K V A N A R L G S F 17

61 CTCGTCCCTCCTCCTGTGCTGGCGAGGCAGCATCTACAAGCTGCTGTATGGAGAATTCCT 120
18 S S L L L C W R G S I Y K L L Y G E F L 37

121 TGTCTTCATATTCCTCTACTATTCCATCCGTGGACTCTACAGAATGGTTCTCTCGAGTGA 180
38 V F I F L Y Y S I R G L Y R M V L S S D 57

181 TCAGCAGCTGTTGTTTGAGAAGCTGGCTCTGTACTGCGACAGCTACATTCAGCTCATCCC 240
58 Q Q L L F E K L A L Y C D S Y I Q L I P 77

241 TATATCCTTCGTTCTGGGTTTCTATGTTACATTGGTGGTGAGCCGCTGGTGGAGCCAGTA 300
78 I S F V L G F Y V T L V V S R W W S Q Y 97

301 CGAGAACTTGCCGTGGCCCGACCGCCTCATGATCCAGGTGTCTAGCTTCGTGGAGGGCAA 360
98 E N L P W P D R L M I Q V S S F V E G K 117

361 GGATGAGGAAGGCCGTTTGCTGCGGCGCACGCTCATCCGCTACGCCATCCTGGGCCAAGT 420
118 D E E G R L L R R T L I R Y A I L G Q V 137

421 GCTCATCCTGCGCAGCATCAGCACCTCGGTCTACAAGCGCTTTCCCACTCTTCACCACCT 480
138 L I L R S I S T S V Y K R F P T L H H L 157

481 GGTGCTAGCAGGTTTTATGACCCATGGGGAACATAAGCAGTTGCAGAAGTTGGGCCTACC 540
158 V L A G F M T H G E H K Q L Q K L G L P 177

541 ACACAACACATTCTGGGTGCCCTGGGTGTGGTTTGCCAACTTGTCATGAAGGCCTATCT 600
178 H N T F W V P W V W F A N L S M K A Y L 197

601 TGGAGGTGCAATCCGGGACACCGTCCTGCTCCAGAGCCTGATGAATGAGGTGTGTACTTT 660
198 G G R I R D T V L L Q S L M N E V C T L 217

661 GCGTACTCAGTGTGGACAGCTGTATGCCTACGACTGGATAAGTATCCCATTGGTGTACAC 720
218 R T Q C G Q L Y A Y D W I S I P L V Y T 237

721 ACAGGTGGTGACAGTGGCAGTATACAGCTTTTTCCTTGCTGCTTGATCGGGAGGCAGTT 780
238 Q V V T V A V Y S F F L A C L I G R Q F 257

FIG.8A

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781 TCTGAACCCAAACAAGGACTACCCAGGCCATGAGATGGATCTGGTTGTGCCTGTCTTCAC 840
258 L N P N K D Y P G H E M D L V V P V F T 277

841 AATCCTGCAATTCTTATTCTACATGGGCTGGCTGAAGGTGGCAGAACAGCTCATCAACCC 900
278 I L Q F L F Y M G W L K V A E Q L I N P 297

901 CTTGCGGGGAGGACGATGATGATTTTGAGACTAACTGGATCATTGACAGAAACCTGCAGGT 960
298 F G E D D D D F E T N W I I D R N L Q V 317

961 GTCCCTGTTGTCCGTGGATGGGATGCACCAGAACTTGCCTCCCATGGAACGTGACATGTA 1020
318 S L L S V D G M H Q N L P P M E R D M Y 337

1021 CTGGAACGAGGCAGCGCCTCAGCCGCCCTACACAGCTGCTTCTGCCAGGTCTCGCCGGCA 1080
338 W N E A A P Q P P Y T A A S A R S R R H 357

1081 TTCCTTCATGGGCTCCACCTTCAACATCAGCCTAAAGAAAGAAGACTTAGAGCTTTGGTC 1140
358 S F M G S T F N I S L K K E D L E L W S 377

1141 AAAAGAGGAGGCTGACACGGATAAGAAAGAGAGTGGCTATAGCAGCACCATAGGCTGCTT 1200
378 K E E A D T D K K E S G Y S S T I G C F 397

1201 CTTAGGACTGCAACCCAAAAACTACCATCTTCCCTTGAAAGACTTAAAGACCAAACCTATT 1260
398 L G L Q P K N Y H L P L K D L K T K L L 417

1261 GTGTTCTAAGAACCCCTCCTCGAAGGCCAGTGTAAGGATGCCAACCAGAAAAACCAGAA 1320
418 C S K N P L L E G Q C K D A N Q K N Q K 437

1321 AGATGTCTGGAAATTTAAGGGTCTGGACTTCTTGAAATGTGTTCCAAGGTTTAAGAGGAG 1380
438 D V W K F K G L D F L K C V P R F K R R 457

1381 AGGCTCCCATTGTGGCCACAGGCACCCAGCAGCCACCCTACTGAGCAGTCAGCACCCCTC 1440
458 G S H C G P Q A P S S H P T E Q S A P S 477

1441 CAGTTCAGACACAGGTGATGGGCCTTCCACAGATTACCAAGAAATCTGTACATGAAAAA 1500
478 S S D T G D G P S T D Y Q E I C H M K K 497

1501 GAAAACGTGGAGTTTAACTTGAACATTCCAGAGAGCCCCACAGAACATCTTCAACAGCG 1560
498 K T V E F N L N I P E S P T E H L Q Q R 517

1561 CCGTTTGGACCAGATGTCAACCAATATACAGGCTCTAATGAAGGAGCATGCAGAGTCCTA 1620

FIG.8B

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518 R L D Q M S T N I Q A L M K E H A E S Y 537

1621 TCCCTACAGGGATGAAGCTGGCACCAAACCTGTTCTCTATGAGTGATGCCTCACAGCCTG 1680
538 P Y R D E A G T K P V L Y E 551

1681 GCCCTGACTTGCAAGGATGCCAGCAGGGCACTGACCCAGTCAAAGGCACACAAGCAGCG 1740

1741 ACACCCAGGAGTGTGTTCCCACGACAGTCTAGCATGTAACCTCAGAACCAAGAGTACTTAA 1800

1801 TAGTCCTGCCTGAAAACACCTGTATTTTACGATCTTCCCAAACCTAAGGAGTTT AATAAA 1860

1861 CGTGAATATTCTTTTAGGTGAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA 1916

FIG.8C

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1
 Human MTITYTSQVA NARLGSFSRL LLCWRGSIYK LLYGEFLIFL LCYYIIRFIY 50
 MouseBestrophin] MTITYTNKVA NARLGSFSSL LLCWRGSIYK LLYGEFLVFI FLYYSIRGLY

51
 Human RLALTEEQQL MFEKLTLYCD SYIQLIPISF VLGFYVTLVV TRWWNQYENL 100
 MouseBestrophin] RMVLSSDQQL LFEKLALYCD SYIQLIPISF VLGFYVTLVV SRWWSQYENL

101
 Human PWPDRMLSLV SGFVEGKDEQ GRLLRRTLIR YANLGNVLIL RSVSTAVYKR 150
 MouseBestrophin] PWPDRMLIQV SSFVEGKDEE GRLLRRTLIR YAILGQVLIL RSISTSVYKR

151
 Human FPSAQHLVQA GFMTPEAHKQ LEKLSLPHNM FWVPWVWFAN LSMKAWLGGR 200
 MouseBestrophin] FPTLHHLVLA GFMTGHEHKQ LQKLGLPHNT FWVPWVWFAN LSMKAYLGGR

201
 Human IRDPILLOSL LNECNTLRTO CGHLYAYDWI SIPLVYTQVV TVAVYSFFLT 250
 MouseBestrophin] IRDTVLLQSL MNEVCTLRTO CGQLYAYDWI SIPLVYTQVV TVAVYSFFLA

251
 Human CLVGRQFLNP AKAYPGHELD LVVPVFTFLO FFFYVGWLKV AEQLINPFGE 300
 MouseBestrophin] CLIGRQFLNP NKDYPGHEMD LVVPVFTILO FLFYMGWLKV AEQLINPFGE

301
 Human DDDDFETNWI VDRNLQVSLL AVDEMHQDLP RMEPDMYWNR PEPQPPYTAA 350
 MouseBestrophin] DDDDFETNWI IDRNLQVSLL SVDGMHQNL PMERDMYWNE AAPQPPYTAA

351
 Human SAQFRRASFV GSTFNISLNK EEMEFQPNQEDEEDAH AGIIGRFLGL 400
 MouseBestrophin] SARSRRHSFM GSTFNISLKK EDLEWSKEE ADTDKKEGY SSTIGCFLGL

401
 Human QSHDHHPRA NSRTKLLWPK RESLLHEGLP KNHKAQKQV RGQEDNKAWK 450
 MouseBestrophin] QPKNYHLPLK DLKTKLLCSK NPLL..EGQC KD.....ANQ KNQKD..VWK

451
 Human LKAVIDAFKSA PLYQRPGYYS APQTPLSPTP MFFPLEPSAP SKLHVSFTGID 500
 MouseBestrophin] FRGLDFLKC V PRFKRRGSHC GPQAPSS... ..HPTEQSAP SS..SDTG..

501
 Human TKDKSLKTVS SGAKKSFELL SESDGALMEH PEVSQVRRKT VEFNLDTMPE 550
 MouseBestrophin] DGPSTDY QEICHMKKKT VEFNL.NIPE

551
 Human IPENHLKE.P LEQSPTNIHT TLKDHMDPYW ALNDRDEAHS 596
 MouseBestrophin] SPTEHLQRR LDQMSTNIQA LMKEHAESY. ...PYRDEAGT KPVLYE

FIG.9

FIG.10B

• GCL

IPL

OPL

NO

IS

OS

RPE

FIG.10A

FIG.10C